

ARMSTRONG
LABORATORY

AL-TR-1993-0033

AD-A265 363



DTIC

ELECTE

JUN 2 1993

S C D



EQUIPMENT LOAN INVENTORY

Edward J. Primeau, Staff Sergeant, USAF

OCCUPATIONAL AND ENVIRONMENTAL HEALTH DIRECTORATE
OCCUPATIONAL MEDICINE DIVISION
2402 E Drive
Brooks Air Force Base, TX 78235-5114

March 1993

Final Technical Report

Approved for public release; distribution is unlimited.

93-12309

93 6 01 017



AIR FORCE MATERIEL COMMAND
BROOKS AIR FORCE BASE, TEXAS

NOTICES

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder or any other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The mention of trade names or commercial products in this publication is for illustration purposes and does not constitute endorsement or recommendation for use by the United States Air Force.

The Office of Public Affairs has reviewed this report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

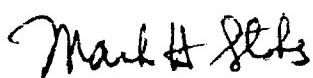
This report has been reviewed and is approved for publication.

Government agencies and their contractors registered with Defense Technical Information Center (DTIC) should direct requests for copies to: DTIC, Building 5, Cameron Station, Alexandria VA 22304-6145.

Non-Government agencies may purchase copies of this report from: National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield VA 22161.



EDWARD J. PRIMEAU, SSgt, USAF
NCOIC, Equipment Loan Section



MARK H. STOKES, Col, USAF, BSC
Chief, Occupational Medicine
Division

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1.0 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the written information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project O-1250, Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 1993	Final
4. TITLE AND SUBTITLE		5. FUNDING NUMBERS
Equipment Loan Inventory		
6. AUTHOR(S)		
Edward J. Primeau		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)		8. PERFORMING ORGANIZATION REPORT NUMBER
Armstrong Laboratory Occupational and Environmental Health Directorate Occupational Medicine Division 2402 E Drive <u>Brooks Air Force Base, TX 78235-5114</u>		AL-TR-1993-0033
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES		
12a. DISTRIBUTION/AVAILABILITY STATEMENT		12b. DISTRIBUTION CODE
Approved for public release; distribution is unlimited.		
13. ABSTRACT (Maximum 200 words)		
The Equipment Loan Section of Armstrong Laboratory maintains industrial hygiene, environmental, and radiation measuring equipment for use by base-level bioenvironmental engineering offices. This technical report lists the equipment available for loan.		
14. SUBJECT TERMS		15. NUMBER OF PAGES
Equipment Loan Industrial Hygiene Equipment Environmental Quality Equipment		38
		16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT
Unclassified	Unclassified	Unclassified
20. LIMITATION OF ABSTRACT		UL

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
LOAN PROCEDURES.....	2
Equipment.....	2
Industrial Hygiene Supplies.....	3
INDUSTRIAL HYGIENE EQUIPMENT INVENTORY.....	4
RADIATION EQUIPMENT INVENTORY.....	9
ENVIRONMENTAL QUALITY EQUIPMENT INVENTORY.....	11
EQUIPMENT LOAN SAMPLING SUPPLIES.....	12
MANUFACTURERS INDEX.....	16
APPENDIX	
Equipment Loan Procedures.....	27

Accession For		
NTIS	CRA&I	<input checked="" type="checkbox"/>
DTIC	TAB	<input type="checkbox"/>
Unannounced		<input type="checkbox"/>
Justification		
By		
Distribution /		
Availability Codes		
Dist		Avail and / or Special
A-1		

EQUIPMENT LOAN INVENTORY

INTRODUCTION

The mission of the Armstrong Laboratory (AL) is to provide professional consultation, specialized laboratory services, and operational field support to Air Force installations worldwide in the areas of occupational, radiological, and environmental health. The mission of the Equipment Loan Section is to provide equipment loans and consultations to Air Force installations worldwide. This report provides a listing of all equipment currently in the Equipment Loan inventory. This listing is provided for use by Air Force personnel to determine if Equipment Loan has the equipment they need to borrow. Also included in this report is a listing of sampling supplies which Equipment Loan maintains for emergency requests from Air Force installations. The last section of this report contains a listing of equipment and supply manufacturers, including addresses and telephone numbers. When available, a toll free number and FAX number for the manufacturer have been provided.

Additional information concerning this report or the Equipment Loan inventory can be obtained from the AL/OEMI Equipment Loan Section, Building 175W, 2402 E Drive, Brooks AFB, TX 78235-5114, DSN 240-2142.

LOAN PROCEDURES

Equipment

The following procedures are for borrowing equipment (they are also summarized in the flowchart in the Appendix).

a. To request equipment, send a letter or a FAX to Equipment Loan (FAX No. 240-3945). The letter/FAX should include: the manufacturer and model number of the requested equipment; list of necessary accessories (please be as specific as possible to avoid errors/delays); your complete mailing address to include building number and street address; a point of contact; and a phone number. Overseas bases should indicate base name and host country.

b. Equipment Loan will process your request within 2 duty days, to include sending equipment out through the Transportation Management Office (TMO). Allow 7 days for delivery. If you need it sooner, provide us with a Federal Express Account Number or some other funding mechanism.

c. When you receive the equipment, take the following actions:

(1) Perform an inventory and an operational check of the equipment. Fill out the hand receipt (AF Form 1297) and the questionnaire and send them back in the provided self-addressed envelope. Insure that you sign and date the AF Form 1297 and note any discrepancies.

(2) If you need a loan period extension, call Equipment Loan and explain the situation. An extension of up to 2 weeks will normally be granted, unless there is a waiting list for the equipment.

(3) When returning the equipment, be sure to package it properly. DO NOT send the equipment in its carrying case; it must be separately padded to prevent damage. It is your responsibility to insure that Packing and Crating packages the equipment properly and that it is sent via a traceable means. Maintain the Transportation Control Number so the item can be traced if the equipment doesn't show up after an appropriate period of time.

d. If you request an item that is not presently available, you will be placed on a waiting list. As soon as the equipment is available, you will be contacted and the equipment will be sent out.

Industrial Hygiene Supplies

The following procedures are for obtaining sampling media.

- a. Equipment Loan stocks a limited supply of air sampling media for EMERGENCY requests. Equipment Lcan can also help you with ordering information for your routine sampling media needs.
- b. Review the AFOEHL Recommended Sampling Procedures, March 1989, and consider alternative sampling methods.
- c. Call Equipment Loan (DSN 240-2142, 2130, 3669) to request air sampling media. Indicate the collection method you will be using.
- d. Please limit your request to 10 items. Quantities in excess of 10 will be granted on a case-by-case basis; however we expect you to replace media when quantities exceed 10.
- e. Air sampling media will normally be sent by mail. If you need it overnight, supply Equipment Loan with your Federal Express Account Number. Otherwise, your request will be mailed out within 2 duty days of the request.

INDUSTRIAL HYGIENE EQUIPMENT INVENTORY

Acoustical Calibrators

- General Radio Model 1562-A Sound Level Calibrator - 125 Hz thru 2000 Hz (adjustable)
- General Radio Model 1567 Sound Level Calibrator - 114 dB at 1000 Hz
- General Radio Model 1986 Omnical Sound Level Calibrator - 74 dB to 114 dB, 125 Hz thru 4000 Hz.
- Metrosonics Model CL303 Acoustical Calibrator - 102 dB at 1000 Hz
- Metrosonics Model CL304 Acoustical Calibrator - 102 dB at 1000 Hz

Air Samplers (Personal)

- Dupont Alpha 1 Multi-Flow Air Sampler (IT) - 5 to 5000 cc/min
- Dupont Alpha 2 Low Flow Sampler (IT) - 5 to 200 cc/min
- Gillian Model HFS-113A High Flow Air Sampler (IT) - 500 to 3500 cc/min

Air Velocity Meters

- Alnor Model 8500D-II Digital Thermo-Anemometer - 20 to 3000 fpm, temperature and m/s also displayed
- Kurz Model 443 Air Velocity Meter - 0 to 12,000 fpm, 0 to 5" H₂O (static pressure)
- Kurz Model 1440 Air Velocity Meter - 0 to 12,000 fpm
- Pacer Model DA4000 Digital Vane Anemometer - displayed in fpm or mps
- Sierra Model 617 Air Velocity Meter - 0 to 12,000 fpm, 0 to 5" H₂O (static pressure)
- Alnor Balameter - 0 to 2,000 cfm
- Dwyer Incline Manometer - 0 to 12" H₂O, 500 to 12000 fpm

Combustible Gas and Oxygen Detectors

- GasTech Model 1314 Combustible Gas/Oxygen Analyzer - detects and measures concentrations of CG/Vapors and Oxygen
- Industrial Scientific Model MX241 Combustible Gas/Oxygen Monitor - detects and measures concentrations of GC/Vapors and Oxygen
- Neotronics Exotox 75 - 0 to 32% O₂, 0 to 100% LEL, 0 to 999 ppm CO, 0 to 99 ppm NO₂, 0 to 499 ppm H₂S, 10 to 90% Rel Hum, -4 to 122 degrees Fahrenheit

Dust/Particle Detectors

- ATI Model TDA-2E Particle Detector Apparatus - size 0.1 to 100 micrometers
- SKC Cyclone Respirable Dust Sampler
- MSA Cyclone Respirable Dust Sampler

Heat Stress Analyzers/Temperature and Humidity Instruments

- Botsball, Black Globe Kit
- Princo Sling Psychrometer - Dry Bulb(DB), Wet Bulb(WB), Relative Humidity(RH)
- Reuter-Stokes Model RSS-211D Heat Stress Monitor - DB, WB, Globe Temperature(GT), WBGT (IN/OUT), and strip chart recorder
- Vista Scientific Model 858 Heat Stress Analyzer - DB, WB, GT, WBGT (IN/OUT), with scan and strip chart recorder

Light Meters

- Photo Research Model 504 Photometer - 0.5 to 19,999 fc
- Simpson Model 408-2 Illumination Level Meter - 0 to 500 fc

Mass Flow/Air Flow Calibration Instruments

- Bubble Tube - 0 to 500 cc/min
- Buck Model M-5 Calibrator - 1 to 6000 cc/min
- Gilian Model Gilibrator Primary Flow Calibrator - with 3 flow sensors in ranges: 1 to 250 cc, 20cc to 6 lpm, 2 to 30 lpm

Microbial Samplers

- Anderson Model 15-502 2-Stage Microbial Sampler - stage 1 (nonrespirable), stage 2 (respirable)
- Mattson-Garvin Model 200 Microbial/Biological Sampler - collects bacteria and fungi on a media, changeable time settings (150 ml), 15/30/60 min motor

Miscellaneous Equipment

- Centronics Model GLP-II Printer - used with Metrosonics db-310 Noise Dosimeters
- Gast Model DOA-P104-AA Vacuum/Pressure Pump - oil-less, 60 psig max pressure, 24" max vacuum, free air capacity 1.2 cfm
- Gilian Spill Proof Impinger
- Metrosonics dl-332 Data Logger - time, date, alarm, min, max, aver, stel, total time, time history
- SKC Midget Impinger, Fritted Nozzle
- SKC Midget Impinger, Standard Nozzle
- Staplex Calibration Kit
- Template for swipe sampling - 1 ft by 1 ft
- TSI Portacount Plus Model 8020 Respirator Fit Tester
- YSI Model 43TD Tele-thermometer
- YSI Model 44TC Tele-thermometer
- YSI Model 44TZ Tele-thermometer

Noise Dosimeters

- Dupont Model Mark-1 Audio Dosimeter - SLM, Dose %, L avg, L max, and duration
- Larson-Davis Model 700 Noise Dosimeter - SLM, time history, secure mode, projected dose, dose %, L avg, L min, L max, L peak, LDL function to recalculate data with new threshold, criterion and exchange rate, and printout capabilities
- Metrosonics Model db-310 Noise Dosimeters - time history, L max, L peak, L avg, secure mode, projected dose, and ECL printed onto AF Form 2756A or 2756B
- Metrosonics Model db-3100 Noise Dosimeters - time history, L max, L peak, L avg, TWA, projected dose, slow response, secure mode, select A or C weighting, PC interface

Sound Level Meters

- General Radio Model 1565-B Sound Level Meter - 50 to 140 dB range, A/B/C weighting, slow response
- General Radio Model 1981B Sound Level Meter - 30 to 120 dB range, slow/fast response, A weighting only
- General Radio Model 1982 Sound Level Meter and Analyzer - octave band (31.5 Hz to 16kHz, A/B/C/Flat weightings, fast/slow/impact and impulse responses, 30 to 140 dB range (10dB attenuator available)
- General Radio Model 1988 Integrating Sound Level Meter - same as 1982 but integrates

Toxic Gas Analyzers (General)

- Draeger Model 21/31 Multi-Gas Detector - for use with Draeger Detector Tubes, hand pump
- MSA Model A Samplair Pump - for use with MSA Detector Tubes, hand pump
- Sensidyne Model 800 Toxic Gas Detector Pump - for use with Sensidyne Detector Tubes, hand pump
- Seiger Model 3061 AUTOSPOT Toxic Gas Detector (requires a 4-month advance notice before loan, 90-day shelf life cartridge)
- Microtip HL-2000 Air Monitor/Photoionization Detector - 9.5 and 10.6 eV tube, 0.1 to 2000 ppm

Toxic Gas Analyzers (Specific)

- Energetic Sciences Ecolyzer Model 2000 Carbon Monoxide Analyzer - measures from 0 to 600 ppm (dual range), portable
- Interscan Model 1142 Carbon Monoxide Analyzer - measures from 0 to 500 ppm (dual range), portable
- Interscan Model 4368 Hydrogen Chloride Analyzer - measures from 0 to 50 ppm
- Jerome Model 411 Mercury Vapor Analyzer - 10-second detection limit 0.001 to 0.999 mg/m³ Hg
- Jerome Model 431 Mercury Vapor Analyzer - 0 to 0.999 mg/m³ Hg
- Neotronics CO-101 Carbon Monoxide Analyzer - 0 to 3999 ppm with alarm settings 50/400 ppm
- Neotronics Exotox 75 Ambilog - measures 0 to 499 ppm H₂S, 0 to 99 ppm NO₂, 0 to 999 ppm CO, 0 to 32% O₂, 0 to 100% LEL, 10 to 90% Rel Hum, -4 to 122 degrees Fahrenheit
- Metrosonics AQ-501 Air Quality Monitor - measures 0 to 5000 ppm CO₂, 0 to 100% Relative Humidity, 0 to 60 degrees Celsius

RADIATION EQUIPMENT INVENTORY

Non-Ionizing Radiation Meters

- Narda Model 8611 Broadband Isotropic Radiation Meter - for use with Narda Probes 86X1, 86X2, 86X3, 8635, 8644 and 8682
- Narda Model 8616 Broadband Isotropic Radiation Meter - for use with Narda Probes 86X1, 86X2, 86X3, 8682
- Narda Model 8716 Broadband Isotropic Radiation Meter - for use with Narda Probe 8722
- Narda Model 8696 Averaging Module - for use with Narda Model 8616 meter

Non-Ionizing Radiation Probes

- Narda Model 8621B₂ Isotropic Radiation Probe (E Field) - 0.3 to 26 GHz, 20 mW/cm²
- Narda Model 8621D₂ Isotropic Radiation Probe (E Field) - 0.3 to 40 GHz, 20 mW/cm²
- Narda Model 8623B₂ Isotropic Radiation Probe (E Field) - 0.3 to 26 GHz, 100 mW/cm²
- Narda Model 8631 Isotropic Radiation Probe (H Field) - 10 to 300 MHz, 20 mW/cm²
- Narda Model 8633 Isotropic Radiation Probe (H Field) - 10 to 300 MHz, 10 mW/cm²
- Narda Model 8652 Isotropic Radiation Probe (H Field) - 0.3 to 10 MHz, 200 mW/cm²
- Narda Model 8662 Isotropic Radiation Probe (E Field) - 0.3 to 300 MHz, 200 mW/cm²
- Narda Model 8662B Isotropic Radiation Probe (E Field) - 0.3 to 1,000 MHz, 200 mW/cm²

Ionizing Radiation Meters

- Victoreen Model 470A Beta/Gamma/X-Ray Radiation meter - 0 to 3/10/30/100/300/1000 range, R/hr, mR/hr and integrate mR

- Victoreen Model 471 Beta/Gamma/X-Ray Radiation Meter - 0 to 1/10/30/100/300 range, mR/hr and R/hr (rate), integrate mode mR in same ranges
- Victoreen Model 471RF Beta/Gamma/X-Ray Radiation Meter - 0 to 1/10/30/100/300 range, mR/hr, mR and integrate mR
- Radcal MDH Model 1015 X-Ray Monitor - for use with MDH Probes 10X5-3, 10X5-180, and 10X5-6M
- Radcal MDH Model 2025 X-Ray Monitor - for use with MDH Probes 20X5-3, 20X5-180, and 20X5-6M

Ionizing Radiation Probes

- Radcal MDH Model 10X5-3 Diagnostic Probe
- Radcal MDH Model 10X5-180 Scatter Probe
- Radcal MDH Model 20X5-3 Diagnostic Probe
- Radcal MDH Model 20X5-180 Scatter Probe
- Radcal MDH Model 20X5-6M Mammo Probe
- Radcal MDH Model 20X5-10.3CT CT Probe

Ultra-Violet Radiation Meter

- International Light Model IL7300 Ultra-Violet Radiometer - ranges: 180 to 400 nm, Power Density - 0 to 0.5 W/cm²

ENVIRONMENTAL QUALITY EQUIPMENT INVENTORY

Conductivity Meters

- YSI Model 33 Conductivity Meter - 0 to 500/5000/50000 micromhos/cm range

Dissolved Oxygen Meters

- YSI Model 51A Dissolved Oxygen Meter - 5 to 45 degrees Celsius temperature range, 0 to 15 ppm range, fresh and sea water
- YSI Model 51B Dissolved Oxygen Meter - same as 51A, but range is 0 to 10 mg/l

Flow Meter

- Marsh/McBirney Model 201D Portable Digital Water Current Meter - 0.5 to 10 ft/sec

pH Meters

- Fisher Model 640 Digital pH Meter - 0 to 14
- Orion Research Model 221 Digital pH Meter - 0 to 14
- Cole-Parmer Model 5985-40 Digital pH Meter - 0 to 14
- Cole-Parmer Model 5986 Digital pH Meter - 0 to 14

Wastewater Sampler

- SIGMA Streamline 800SL Portable Sampler with Integral Flowmeter and Rain Gauge

Well Sampling Pump

- Fultz Model SP-202 Groundwater Sampling Pump - self-powered (internal batteries and external gas engine), 1 to 60 ft well depth capability, performance is 1 gal/min per 50 ft

EQUIPMENT LOAN SAMPLING SUPPLIES

Aerosol Filter Cassettes

GF - Glass Fiber, 37 mm

GG - Glass Fiber, 13 mm

MF - Mixed Cellulose Ester, 37 mm, 0.8 micrometer

MG - Mixed Cellulose Ester, 25 mm, 0.45 micrometer

MH - Mixed Cellulose Ester, 37 mm, 0.45 micrometer

P5 - Polyvinyl Chloride, 37 mm, 5 micrometer

P7 - Polyvinyl Chloride, 37 mm, 5 micrometer, matched weight

P8 - Polyvinyl Chloride, 37 mm, 0.8 micrometer

SM - Silver Membrane, 37 mm, 0.8 micrometer

TF - Polytetrafluoroethylene Teflon (PTFE), 37 mm, 1 micrometer

TG - PTFE, 37 mm, 2 micrometer

Air Sampling Tubes

AL - Alumina Tubes, 50/100 mg sorbent
SKC Catalog # 226-11

CB - Chromosorb-102, 50/100 mg sorbent
SKC Catalog # 226-10

CD - Chromosorb-104, 75/150 mg sorbent, designated shelf life
SKC Catalog # 226-109

CF - Chromosorb-106, 50/100 mg sorbent
SKC Catalog # 226-110

CG - Chromosorb-107, 50, 300 mg sorbent, set, must be thermally treated
SKC Catalog # 226-112

CH - Charcoal Tube, Petroleum, 50/100 mg sorbent, designated shelf life
SKC Catalog # 226-38-03

CM - Charcoal Tube, Coconut, 50/100 mg sorbent, designated shelf life
SKC Catalog # 226-73

CP - Gas Chrom-P, 50 mg sorbent, designated shelf life
SKC Catalog # 226-52

CR - Charcoal, Coconut, 350/350/350 mg sorbent
SKC Catalog # 226-09-02

CT - Charcoal, Coconut 50/100 mg sorbent
SKC Catalog # 226-01

C1 - Charcoal, Coconut, 200/400 mg sorbent
SKC Catalog # 226-09

C2 - can use CT tubes

C3 - Charcoal, Coconut, 200, 400 mg sorbent, set
SKC Catalog # 226-37

C4 - Same as C3

C5 - Charcoal, JXC, 50/100 mg sorbent
SKC Catalog # 226-65

C6 - Charcoal, JXC, 390/700 mg sorbent
SKC Catalog # 226-36

C7 - Charcoal, Petroleum, 50/100 mg sorbent
SKC Catalog # 226-38

C8 - Charcoal, Petroleum, 200, 400 mg sorbent, set
SKC Catalog # 226-38-02

C9 - Same as C8

DR - Drying Tube, 250 mg sorbent
SKC Catalog # 226-44

FB - Firebrick, 300 mg sorbent
SKC Catalog # 226-42-02

FS - Florisil, 50/100 mg sorbent
SKC Catalog # 226-39

HO - Hopcalite, 200 mg sorbent
SKC Catalog # 226-17-1A

MS - Molecular Sieve, 200/400 mg sorbent, designated shelf life
SKC Catalog # 226-40-02

MT - Molecular Sieve, 400/800/400 mg sorbent, designated shelf life
SKC Catalog # 226-40

PP - Porapak-P, 50 100 mg sorbent
SKC Catalog # 226-114

PQ - Porapak-Q, 75/150 mg sorbent
SKC Catalog # 226-115

SG - Silica Gel, 75/150 mg sorbent
SKC Catalog # 226-10

SL - Soda Lime, 200/600 mg sorbent
SKC Catalog # 226-28

S1 - Silica Gel, 100/200 mg sorbent, designated shelf life
SKC Catalog # 226-10-06

S3 - Silica Gel, 50/100 mg sorbent
SKC Catalog # 226-51

S4 - Silica Gel, 150/300 mg sorbent
SKC Catalog # 226-10-04

S5 - Silica Gel, 260/520 mg sorbent
SKC Catalog # 226-15GWS

S6 - Silica Gel, 75/150 mg sorbent, designated shelf life
SKC Catalog # 226-53

S7 - Silica Gel, 200/400 mg sorbent
SKC Catalog # 226-10-03

S8 - Carbon Beads, 1500 mg sorbent, designated shelf life
SKC Catalog # 226-31

TN - Tenax, 50/100 mg sorbent
SKC Catalog # 226-35-03

T1 - Tenax, 10/20 mg sorbent, designated shelf life
SKC Catalog # 226-35-01

T2 - Tenax, 15/30 mg sorbent
SKC Catalog # 226-35

T3 - Tenax, 25/50 mg sorbent, designated shelf life
SKC Catalog # 226-35-06

T4 - Tenax, 35/70 mg sorbent, designated shelf life
SKC Catalog # 226-35-07

T5 - Tenax, 17,35 mg sorbent, set, designated shelf life
SKC Catalog # 226-35-02

XA - XAD-2, 60/120 mg sorbent, designated shelf life
SKC Catalog # 226-118

XB - XAD-2, 75/150 mg sorbent, designated shelf life
SKC Catalog # 226-117

XD - XAD-7, 40/80 mg sorbent, designated shelf life
SKC Catalog # 226-98

XF - XAD-4, 40/80 mg sorbent
SKC Catalog # 226-93

XG - XAD-7, 50/100 mg sorbent
SKC Catalog # 226-95

XH - XAD-7, 175/175 mg sorbent, set
SKC Catalog # 226-97

X1 - XAD-2, 40/80 mg sorbent
SKC Catalog # 226-30

X2 - XAD-2, 30/100 mg sorbent
SKC Catalog # 226-30-03

X3 - XAD-2, 50/100 mg sorbent
SKC Catalog # 226-30-04

X4 - XAD-2, 75/150 mg sorbent
SKC Catalog # 226-30-05

X5 - XAD-2/Filter, 140/270 mg sorbent, designated shelf life
SKC Catalog # 226-30-16

X6 - XAD-2, 200/400 mg sorbent
SKC Catalog # 226-30-06

X7 - XAD-2, 300, 600 mg sorbent, set
SKC Catalog # 226-30-02

X8 - XAD-2, 40/80 mg sorbent, designated shelf life
SKC Catalog # 226-30-18

X9 - XAD-2, 50/100 mg sorbent, designated shelf life
SKC Catalog # 226-23

Passive Dosimeters

PE - Ethylene Oxide Monitors
3M PART # 3551 (18-MONTH SHELF LIFE)

PF - Formaldehyde Monitors
3M PART # 3721 (9-MONTH SHELF LIFE)

PM - Organic Vapor Monitors
3M PART # 3500 (18-MONTH SHELF LIFE)

MANUFACTURERS INDEX

Air Techniques, Inc. 11403 Cronridge Drive Owings Mills, MD 21207	(301) 944-6037
Alnor Instrument Co. 7555 N. Linder Avenue Skokie, IL 60077	(312) 677-3500
Ametec 5600 Summerset Drive Largo, FL 34643	(813) 355-3361
Andersen Samplers, Inc. 4801 Fulton Industrial Blvd. Altanta, GA 30336	(800) 241-6898
Arizona Instruments P.O. Box 930 1100 E. University Dr. Tempe, AZ 85281	(800) 528-7411
Asbestos Control Technology P.O. Box 183 Maple Shade, NJ 08052	(800) 221-1911
Bacharach 625 Alpha Drive Pittsburgh, PA 15238	(412) 963-2091
Beckman Instruments 2500 Harbor Blvd. Fullerton, CA 92634	(714) 871-4848
BGI, Inc. 58 Guinan Street Walthan, MA 02154	(617) 891-9380
Brue & Kjaer 185 Forest St. Marlborough, MA 01752	(508) 481-7000

Cahn Instruments 16207 South Carmenita Road Cerritos, CA 90701	(800) 423-6641
Calibrated Instruments, Inc. 200 Saw Mill River Road Hawthorne, NY 10532	(914) 741-5700
California Measurements, Inc. 150 East Montecito Avenue Sierra Madre, CA 91024	(818) 355-3361
CEA Instruments 16 Chestnut Street P.O. Box 303 Emerson, NJ 07630	(201) 967-5660
Cole-Parmer Instrument Co. 7425 North Oak Park Avenue Chicago, IL 60648	(312) 647- 7600
Columbia Scientific Industries P.O. Box 203190 Austin, TX 78720	(910) 874-1364
Curtin-Matheson Scientific P.O. Box 1416 Houston, TX 77521-14146	(800) 392-3353
Daco Products, Inc. 12 South Mountain Avenue Montclair, NJ 07042	(201) 744-2453
Davis Instruments Co. 513 East 36th Street Baltimore, MD 21218	(301) 243-4301
Detector Electronics Corp. 6901 W. 110th St. Minneapolis, MN 55438	(612) 941-5665
Devilbiss Ransburg Co. 1724 Indian Wood Circle Maumee, OH 43537	(800) 628-1200
Dickson Company 930 South Westwood Drive Adison, IL 60101	(312) 543-3747
Direct Safety Company 7815 South 46th Street Phoenix, AZ 85044	(800) 528-7405

Dosimeter Corporation of America 11286 Grooms Road P.O. Box 42377 Cincinnati, OH 45242	(513) 498-8100
Dwyer Instruments P.O. Box 373 Michigan City, IN 46360	(219) 872-9141
Eberline Analytical Corp. 5635 Jefferson Blvd NE 3874 Albuquerque, NM 87190	(505) 345-9931
E.I.L. Instruments, Inc. 10 Loveton Circle Sparks, MD 21152	(301) 771-4800
Enmet Corp. 2308 S. Industrial Highway Ann Arbor, MI 48104	(313) 761-1270
Fisher Scientific 711 Forbes Ave. Pittsburgh, PA 15219	(412) 562-8300
Fisher & Porter Co. 10301 Stella Link Dr. Suite 100 Houston, TX 77025	(713) 666-5409
Fluke Mfg. Company 10417 Gulfdale San Antonio, TX 78216	(512) 340-2621
Foxboro Company Bristol Park 1352-1B Foxboro, MA 49022	(508) 543-8750
Gast Mfg. Corp. P.O. Box 97 Benton Harbor, MI 49023-0097	(616) 926-6171
GasTech, Inc. 8445 Central Avenue Newark, CA 94560	(415) 794-6200
GCA Industries, Inc. 213 Burlington Rd. Bedford, MA 01730	(617) 275-5444
Gelman Sciences, Inc. 600 South Wagner Road Ann Arbor, MI 48106	(800) 521-1520

General Eastern Instruments 50 Hunt Street Watertown, MA 02172	(617) 923-2386
General Metal Works 145 South Miami Avenue Village of Cleves, OH 45002	(800) 543-7412
Gillian Instrument Corp. 8 Dawes Highway Wayne, NJ 07470	(201) 808-3355
Gilmont Instruments, Inc. 401 Great Neck Rd. Great Neck, NY 11021	(516) 487-0120
GMD Systems, Inc. Old Route 519 Hendersonville, PA 15339	(412) 746-3600
Gow Mac Instruments Co. P.O. Box 32 Bound Brook, NJ 08805	(201) 560-0600
Grace Industries, Inc. P.O. Box 167 Transfer, PA 16154	(412) 962-9231
Gulton Industries Route 2 Middle Road East Greenwich, RI 02818	(401) 884-6800
Heise Plant, Dresser Industries 153 South Lane Street Newtown, CT 06470	(203) 426-3115
HNU Systems, Inc. 160 Charlemont Street Newton, MA 02161	(617) 964-6690
Holiday Industries, Inc. 14825 Martin Drive Eden Prairie, MN 55344	(612) 934-4920
Huygen Corporation Box 316 Wauconda, IL 60084	(312) 381-4050
Industrial Scientific Corp. 355 Steubenville Park Oakdale, PA 15071	(800) 338-3287 FAX (412) 788-8353
International Light, Inc. 17 Graf Road Newburyport, MA 01950	(508) 465-5923 FAX (412) 462-0759

Interscan Corporation 21700 Nordhoff Street P.O. Box 2496 Chatsworth, CA 91311	(818) 822-2331
ISCO, Inc., Environmental Div. P.O. Box 82531 Lincoln, NE 68501	(402) 474-2233
Kurz Instruments, Inc. 20 Village Sq. P.O. Box 849 Carmel Valley, CA 93924	(408) 659-3421
Lab Line Instruments, Inc. 15th and Bloomingdale Avenue Melrose Park, IL 60160	(800) 323-0257
Lab Safety Supply Company 3430 Palmer Drive, P.O. Box 1368 Janesville, WI 53547	(800) 356-0783
Larson Davis 1681 West 820 North Provo, UT 84601	(801) 375-0177
Linseis Corp. P.O. Box 666 Princeton Junction, NJ 08550	(800) 732-6733
Lucas/CEL 760 Ritchie Hwy, Ste N6 Severna Park, MD 21146	(301) 544-8773
Lumidor Safety Products 5364 NW 167th Street Miami, FL 33014	(305) 625-6511
3M Occ Health & Environ Safety Bldg 275-6W-01 St. Paul, MN 55144	(800) 328-1667
Markson Science 7815 S. 46th Street Phoenix, AZ 85044-5399	(800) 528-5114
Marsh-McBirney, Inc. 4539 Metropolitan Court Frederick, MD 21701	(800) 368-2723
Mast Div. Mast Keystone, Inc. 2212 East 12th Street Davenport, IA 52803	(319) 326-0141

Matheson Gas Products 932 Peterson Plank Road P.O. Box 85 East Rutherford, NJ 07073	(201) 933-2400
MDA Scientific 405 Barclay Blvd. Lincolnshire, IL 60069	(800) 323-2000 FAX (708) 639-1371
Meriam Instruments 10920 Madison Avenue Cleveland, OH 44102	(216) 281-1100
Met One, Inc. 481 California Avenue Grants Pass, OR 97526	(503) 479-1248
Metrosonic, Inc. P.O. Box 23075 Rochester, NY 14692	(716) 334-7300 FAX (334) 334-2635
Mettler Instrument Corp. P.O. Box 71 Highstown, NJ 08520	(609) 448-3000
Millipore Corp. 80 Ashby Road Bedford, MA 01730	(800) 225-1380
Mine Safety Appliances Co. P.O. Box 79589 Houston, TX 77279	(800) 672-2222
Narda Microwave Corp. 435 Morelad Road Hauppauge, NY 11788	(516) 231-1700 FAX (516) 231-1711
National Draeger, Inc. P.O. Box 120 Pittsburgh, PA 15230	(412) 787-8383
Neotronics, Inc. P.O. Box 120 Pittsburgh, PA 15230	(800) 535-0606
Nucleopore Corp. 7035 Commerce Circle Pleasanton, CA 94566	(415) 463-2530
Pacer Industries, Inc. 1450 First Avenue Chippewa Falls, WI 54729	(715) 723-1141

Paker Meadow Corp. 200 Science Dr. Moorpark, CA 93021	(805) 529-5800
Particle Measuring Systems 1855 South 57th Street Boulder, CO 80301	(303) 443-7100
Photo Research 3000 No. Hollywood Way Burbank, CA 91505	(818) 843-6100
PiPM, Inc. 11428 Kingston Pike Knoxville, TN 37922	(615) 966-8796
Precision Scientific 3737 West Cortland Street Chicago, IL 60647	(312) 227-2660
Princo Instruments 1020 Industrial Highway Southampton, PA 18966	(215) 355-1500
Qualimetrics Corp. 1165 National Dr. Sacramento, CA 95841	(800) 824-5873
Quest Electronics 30100 Town Center Dr. Suite 0-238 Laguna Niguel, CA 92677	(414) 567-9157 FAX 567-4047 (800) 245-0779
Rion Instruments Norwegian Electronics Castle Associates Scantek, Inc. 916 Gist Avenue Silver Spring, MD 20910	(301) 495-7738
Rueter-Stokes Canada Ltd. 465 Dobbie Drive Cambridge, ON NIR 5X9	(519) 623-4880
Scientific Instruments 200 Saw Mill River Rd. Box 268 Hawthorne, NY 10532	(800) 431-5775
Scitec Corp 2000 Logston Richland, WA 99352	(800) 466-5323 FAX (509) 375-4931
Scott Aviation 225 Erie Street Lancaster, NY 14086	(716) 683-5100

Seiger Gasalarm 405 Barclay Blvd Lincolnshire, IL 60069	(800) 221-1039
Sensidyne, Inc. 16333 Bay Vista Dr. Clearwater, FL 60069	(813) 530-3602 FAX (813) 539-0550
Sentex Sensing Technology, Inc. 553 Broad Street Ridgefield, NJ 07657	(201) 530-3602
Shortridge Instruments, Inc. 14609 N. Scottsdale Road Scottsdale, AZ 85260	(602) 991-6744
Sierra Instruments P.O. Box 909 Carmel Valley, CA 93924	(408) 659-3177
Simpson Instruments 7325 Ashcroft St. Houston, TX 77081	(713) 271-3100
Sipin Company 505 Eighth Avenue New York, NY 10018	(212) 695-5706
SKC Gulf Coast 9827 Whithorn Drive Houston, TX 77095-5027	(800) 225-1309 (715) 859-8050
Solomat Corp. 652 Glenbrook Road Stamford, CT 06906	(800) 932-4500 FAX (814) 359-3044
Spectrex Corp. 3594 Haven Avenue Redwood City, CA 94063	(415) 365-6567
Staplex Air Sampler Division 777 Fifth Avenue Brooklyn, NY 11232	(800) 221-0822
Supelco, Inc. Supelco Park Bellfonte, PA 16823	(814) 359 3441 FAX (814) 359-3044
TECH/OPS Landauer & Co. 2 Science Road Glenwood, IL 60425	(708) 755-7000

Teledyne Hasting Raydist P.O. Box 1275 Hampton, VA 23661	(804) 723-6531
Thomas Industries 1419 Illinois Avenue Sheboygan, WI 53082	(414) 457-0463
Thomas Scientific 99 High Hill Rd. ATI-295 Swedesboro, NJ 08085	(609) 467-2000
Tripletter Corporation One Tripletter Dr. Dept A Bluffton, OH 45817	(609) 467-2000
TSI, Inc. P.O.Box 64394 St. Paul, MN 55164	(612) 483-0900 FAX (612) 490-2574
Tylan Corp. 23301 S. Wilmington Carson, CA 90745	(213) 518-3610
Vaisala Inc. 2 Tower Office Park Woburn, MA 01801	(617) 933-4500
Vallen Safety Supply Company 2120 Denton Dr., Suite 105 Austin, TX 78758	(512) 836-9668
Varian Instrument Group 611 Hansen Way Palo Alto, CA 94303	
Vici Metronics 2991 Corvin Drive Santa Clara, CA 94089	(408) 737-0550
Victoreen Nuclear Associates Corp 6000 Cochran Rd. Freeport, NY 11520	(216) 248-9300
Vista Scientific Corp. 85 Industrial Park Ivyland, PA 18970	(215) 322-2255
Weksler Instruments Corp. P.O. Box 808, 80 Mill Road Freeport, NY 11520	(516) 623-0100

Whatman, Inc. 9 Bridewell Place Clifton, NJ 07014	(800) 922-0361
Wheaton Scientific 1000 N. 10th Street Millville, NJ 08332	(609) 825-1100 FAX 1-609-825-1131
Xetex, Inc. 660 National Avenue Mountain View, CA 94043	(415) 964-3261
Xontech, Inc. 6862 Hayvenhurst Avenue Van Nuys, CA 91406	(818) 787-7380
Yellow Springs Instrument Co. P.O. Box 279 Yellow Springs, OH 45387	(513) 767-7241
Zero Haliburton 12224 Montague St. Pacoima, CA 91331	(818) 846-4191

APPENDIX

Equipment Loan Procedures

EQUIPMENT LOAN PROCEDURES

